Health Care Access and Special Care Needs Are Associated With Developmental Well-Being at Age 3

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Key Findings

Access to health care and the quality of that care are associated with developmental well-being among 3-year-olds in the United States. Importantly, these associations differ for children who have—or do not have—special health care needs. When examined jointly with demographic, social, and family characteristics, we found that:

- A child having a medical home (i.e., personal doctor or nurse, usual source for sick care, no difficulty getting referrals, coordinated care, and family-centered care) was associated with higher odds of being "on track" for overall developmental well-being for both children with and without special health care needs. Among children with special health care needs, it was also associated with higher odds of being on track in the Social-Emotional, Self-Regulation, and Physical Health domains.
- Adequate and continuous insurance was associated with higher odds of being on track overall, in Self-Regulation, and in Physical Health among children without special health care needs; however, it was not significantly associated with any outcome among children with special health care needs.
- We also looked at the five individual components of having a medical home: Among children without special health care needs, receiving family-centered care was associated with higher odds of being on track in Social-Emotional development; not needing a referral was associated with higher odds of being on track in Physical Health.
- Among children with special health care needs, receiving family-centered care was associated with higher odds of being on track in Social-Emotional development; not needing a referral was associated with higher odds of being on track in Social-Emotional, Self-Regulation, and Physical Health; and receiving needed care coordination was associated with higher odds of being on track in Self-Regulation.

Introduction

Young children's developmental well-being—comprised of multiple domains, including physical health, motor skills, social-emotional functioning, self-regulation, and early language and math skills—is important to their overall well-being.[1,2] Developmental progress in these domains is shaped by a combination of factors, including the child's individual characteristics, family environment, access to needed services, and broader community and societal contexts.[3] Together, these influences form a dynamic ecology that can

either support or restrict healthy development.[4] In 2022, a national indicator of children's developmental well-being and school readiness, Healthy and Ready to Learn (HRTL), was introduced in the National Survey of Children's Health (NSCH).[5] This new measure for young children ages 3–5 provides opportunities to better understand the developmental well-being of young children in the United States and the child, family, and community conditions that contribute to being healthy and ready to learn.

A child's environment, experiences, and access to health care can play a critical role in supporting their healthy early development.[6] Access to high-quality primary care and adequate health insurance coverage can ensure that children receive preventative services, developmental screening, and timely treatment when needed while also reducing emergency room visits.[7, 8, 9] A **medical home**—a model of comprehensive, coordinated, patient- and family-centered primary care—is typically defined by five components: having a personal doctor or nurse, having a usual source for sick care, experiencing family-centered care, the ease of getting needed referrals to other care and services, and experiencing effective care coordination. **Adequate and continuous health insurance** refers to aspects of a child's insurance coverage, including plans that allow children to see necessary providers, coverage of needed services, and affordable out-of-pocket costs.[10]

Because children with special health care needs (CSHCN) engage with the health care system differently than children without them (non-CSHCN; e.g., more frequent interactions, connecting to more types of providers, greater needs for referrals), and because underlying conditions can independently affect development, we present findings separately for CSHCN and non-CSHCN.[11]

In this brief, we examine how access to a medical home—and to each of the five individual components—and having adequate insurance coverage relate to children's developmental well-being across the five domains of HRTL. To attempt to isolate the associations between various aspects of health care access and quality and development at age 3, our analyses also account for the social and economic contexts of the child and family.

This brief is part of a series that summarizes evidence on how children's daily experiences and environments relate to their developmental well-being at age 3, as measured by HRTL. Age 3 is a key transition period between toddlerhood and preschool, making it an important point for understanding the impact of prenatal-to-age-3 investments and identifying strategies to support children's health and readiness to learn. These analyses focus on malleable factors—i.e., those that can be influenced or changed, and especially those influenced by families, communities, and public policies and programs that may reduce developmental risks and promote positive outcomes.

Methods

Data

This brief reports findings from analyses of the 2022–2024 National Survey of Children's Health (NSCH) datasets. The NSCH is an annual, nationally representative survey of children from birth to age 17, completed by parents and caregivers in English and Spanish. The analytic sample includes approximately 10,230 unweighted responses from parents or caregivers of 3-year-old children, pooled across the 2022, 2023, and 2024 survey years. Weighted estimates from this sample are representative of an estimated annual population of approximately 3,816,005 3-year-old children in the United States. The sample of 3-year-olds with special health care needs (CSHCN) is approximately 1,580, representing approximately 516,700 children, while the non-CSHCN sample is approximately 8,650, representing approximately 3,299,300 children.

Measures

Children's developmental well-being was assessed using the Healthy and Ready to Learn (HRTL) measure, which is a parent/caregiver assessment of children's skills across 28 questions in five domains: Early Learning Skills, Social-Emotional, Self-Regulation, Motor, and Physical Health. Responses are scored as "on track," "emerging," or "needs support," depending on age-specific developmental milestones. Age- and domain-specific cut points are used to determine domain scores of "on track," "emerging," or "needs support." The measure also summarizes across these domains with an overall HRTL score. Children are considered "on track" on the overall measure if they score "on track" in 4 or 5 domains and are not rated as "needs support" in any domain.[12]

Children's health care access and quality included parent-reported measures of:

- **Child has a medical home.** This is a composite measure based on 14 survey items reflecting 5 components of comprehensive and high-quality primary care. The 5 components are:
    - **Personal doctor or nurse**: having a personal doctor or nurse (versus not)
    - **Usual source for sick care:** having a usual source for sick care (versus not)
    - **Family-centered care**: receiving family-centered care (versus not)
    - **Referral difficulty**: no difficulty getting referrals or not needing a referral (versus any difficulty getting referral)
    - **Care coordination**: receiving needed care coordination or not needing care coordination (versus not receiving needed care coordination)
- **Insurance adequacy and continuity.** To meet this indicator, a child must have had continuous insurance coverage for the past 12 months and have had this insurance be adequate based on five components: current coverage, sufficient coverage to meet child's needs, ability to see needed health care providers, out-of-pocket health care costs, and the perceived reasonableness of those costs.

Special health care needs status is determined based on a child experiencing a chronic condition lasting—or expected to last—12 months or longer that results in one of the following consequences: 1) the need for or use of prescription medication, 2) the need for or use of elevated services, 3) functional limitations, 4) the need for or use of special therapies (e.g., physical, speech), or 5) the need for emotional or developmental treatment.

See Appendix Table A1 for the list of health variables and their prevalence by CSHCN status, as well as other socioeconomic and demographic variables that are included in the analyses.

The Healthy and Ready to Learn Measure and Data

Data are available annually on children ages 3, 4, and 5, and estimates are state- and nationally representative. The HRTL measure is the National Outcome Measure of School Readiness for Title V Maternal and Child Health Services Block grantees, and the indicator of Developmentally Ready for School in Healthy People 2030. It was co-developed and validated by Child Trends and HRSA MCHB, and the validated version became available in the NSCH beginning in 2022.

HRTL Measure	Proportion of 3-year-olds "on track"
HRTL Overall	63.7%
Early Learning Skills	69.1%
Social-Emotional	82.8%
Self-Regulation	70.9%
Motor	69.3%
Health	91.2%

For more information about the HRTL measure and for national and state data visit our webpage.

Analyses

We used logistic regression models, estimated separately for CSHCN and non-CSHCN, to understand which health care access indicators were independently associated with being "on track" in each developmental domain and with the overall HRTL measure of developmental well-being. Our analysis accounted for socioeconomic and demographic characteristics as well as other family characteristics. This allowed us to examine whether indicators of health care access were associated with the likelihood of being "on track" overall and in each developmental domain, *over and above* any effects of socioeconomic and demographic characteristics and other family characteristics. We first examined the role of a medical home, as a composite variable, alongside insurance adequacy and continuity and the set of controls (Model 1); we then examined the individual medical home components alongside insurance adequacy to understand the specific influence of individual components (Model 2).

Our socioeconomic and demographic controls included the child's sex, race and ethnicity, low birthweight, exposure to adverse childhood experiences (ACEs), household income relative to the federal poverty level, parental education, and primary home language. Each of these variables is associated with child development through material, social, and—in the case of sex and birthweight—biological or developmental pathways. To reduce the risk of false positive findings that may occur by chance when examining multiple factors, we applied a statistical adjustment to the *p*-values: a Benjamini-Hochberg (B-H) correction. We report findings that remained statistically significant after this adjustment.

Findings

Accounting for child and family characteristics and socioeconomic and demographic conditions, we find that access to a medical home is consistently associated with developmental well-being among 3-year-olds. However, the pattern of associations with well-being among medical home components, insurance adequacy, and development differs for children with and without special health care needs.

Table 1. Summary of significant associations between children's health care characteristics and being on track on HRTL, for CSHCN and non-CSHCN

		HRTL Overall	Early Learning Skills	Social-Emotional Skills	Self-Regulation Skills	Motor Skills	Physical Health
Model 1. Medical Home Composite	Medical home (composite)	Both groups (+)		CSHCN (+)	CSHCN (+)		CSHCN (+)
	Adequate and continuous insurance	Non-CSHCN (+)			Non-CSHCN (+)		Non-CSHCN (+)
Model 2: Medical Home Components	Personal doctor or nurse						
	Usual source for sick care						

		HRTL Overall	Early Learning Skills	Social-Emotional Skills	Self-Regulation Skills	Motor Skills	Physical Health
Model 2: Medical Home Components (cont.)	Family-centered care			Both groups (+)			
	No difficulty getting referrals						
	Did not need a referral			CSHCN (+)	CSHCN (+)		Both groups (+)
	Received needed care coordination				CSHCN (+)		
	Did not need care coordination						
	Adequate and continuous insurance						Non-CSHCN (+)

Note: This table summarizes findings from logistic regression models using the 2022–2024 NSCH data sets, including a set of sociodemographic control variables and the application of a Benjamini–Hochberg (B–H) correction. Findings that remained statistically significant following B-H correction are marked with a (+) for a positive association, with colors denoting the applicable subgroup. Insurance adequacy is shown separately for each model specification; see Methods. See Tables A2–A5 for full logistic regression findings, including odds ratios and standard errors.

Table 1 summarizes the findings from all analyses. As shown, the medical home composite showed significant, positive associations with being Healthy and Ready to Learn for all children, as well as domain-specific associations for CSHCN.[a] This motivates our subsequent analyses looking at associations between individual medical home components and 3-year-olds' development. Next, we turn to the findings from those analyses, beginning with CSHCN.

Children with special health care needs

Among CSHCN, the receipt of family-centered care and needed care coordination were associated with greater likelihoods of being on track in Social-Emotional and Self-Regulation Skills (see Table A4). Compared to children who needed but had difficulty obtaining a referral, those who did not need a referral were more likely to be on track in the domains of Social-Emotional, Self-Regulation, and Physical Health—signaling that children who require referrals likely face greater developmental and health challenges than those who do not.

Other components of having a medical home—personal doctor or nurse, usual source of sick care, and referral difficulty—did not demonstrate significant associations with HRTL domains or the overall measure. Furthermore, while only approximately half of 3-year-olds who have special health care needs had adequate and continuous insurance, we found no significant association between this factor and children's

[a] The medical home composite was modeled alongside adequate insurance and all socioeconomic and demographic controls, as shown in Tables A2 and A3.

developmental outcomes. Finally, no aspect of health care access or quality was associated with children's likelihood of being on track specifically in Early Learning Skills or Motor Skills.

Children without special health care needs

For non-CSHCN, receiving family-centered care was associated with a higher likelihood of being on track in Social-Emotional Skills at age 3, relative to those who do not receive family-centered care (see Table A5). As with CSHCN, the links between needing a referral and the Physical Health domain likely reflect the fact that children who need referrals face more health challenges than children who don't, and are thus more likely to have lower-rated overall health. Further, as with CSHCN, no medical home components or insurance characteristics were associated with children's Early Learning or Motor Skills.

Adequate and continuous insurance did emerge as a significant predictor of some specific domains, and of the overall HRTL measure; the associations varied by whether the insurance variable was tested alongside the medical home composite variable or the individual components. In the analyses alongside the composite, insurance adequacy and continuity was positively associated with being on track overall and in the Self-Regulation and Physical Health domains. When analyzed alongside each individual medical home component, it was positively associated with being on track in the Physical Health domain only.

There are two plausible reasons for why we see this pattern. First, insurance adequacy's association with overall HRTL status is at least partly shared with family-centered care or other medical home components. Second, for the Self-Regulation domain, we see similar-sized odds between both models, suggesting that insurance is not significant in the components model due to the higher number of comparisons—and thus, the higher threshold for ensuring the association is not due to chance. The link between insurance adequacy and Physical Health is maintained across both models, suggesting a more independent link between health insurance quality and parent-rated child health.

Discussion

Our analyses in this brief are the first to take a close look at whether differences in access to a medical home and adequate insurance may have consequences for developmental well-being among toddlers, highlighting opportunities for pediatrics and public health to support child well-being through well-functioning systems of care.

Our findings highlight that modifiable factors of health care access and quality are associated with children's developmental well-being at age 3, but that important variations do exist by children's special health care needs status. Receiving care in a medical home is linked to well-being in more developmental domains for CSHCN than non-CSHCN. Additionally, insurance adequacy is linked to multiple domains of development for non-CSHCN but was not linked to any domains for CSHCN. These findings provide a high-level snapshot of the aspects of health care access and quality that matter most for young children and are helpful for public health efforts focused on improving outcomes for infants and toddlers with CSHCN. As we detail below, additional analyses examining outcomes by insurance type, medical complexity, and state could further illuminate the types of health care system changes that support healthy development.

Three-year-olds who have special health care needs are, themselves, a diverse group: They include children with functional limitations and complex medical needs, as well as children who simply need prescription medication.[13] Previous research finds that those with more complex medical care needs face some of the lowest rates of receiving care in a well-functioning system.[14] Our findings suggest that, across this diverse group of children, improving children's access to family-centered care and effective care coordination may

help improve their social, emotional, and behavioral health at scale. Furthermore, CSHCN who did not need referrals were more likely to be on track in Social-Emotional, Self-Regulation, and Physical Health domains. This likely points to the association between complexity of health care needs and development.

Insurance adequacy and continuity emerged as a significant predictor of development among non-CSHCN only. There are several reasons why this may be the case. We acknowledge substantial variability within the non-CSHCN population, and that many of these children may be at risk for poor health outcomes due to both health and social circumstances, which necessitate access to adequate and continuous insurance.[15] Additional analyses examining subgroups of CSHCN and insurance types, as well as analyses separating insurance adequacy—which largely reflects "unreasonable out-of-pocket-expenses"[16]—from insurance continuity may shed light on whether and how specific features of insurance are associated with the development of young CSHCN. Furthermore, previous work points to substantial variation in insurance adequacy among publicly insured CSHCN, suggesting that the link between insurance adequacy and health and development outcomes may also vary by state.[17]

Each of these health care access characteristics is modifiable, yet lack of adequate access is quite common—and falls disproportionately on CSHCN. As shown in Table A1, nearly two thirds of 3-year-olds who are CSHCN do not receive care in a medical home, compared to approximately half of non-CSHCN. While the majority of 3-year-olds with and without a special health care need were likely to report receiving family-centered care, approximately one fifth of those with special health care needs do not. Among CSHCN who needed care coordination, about half received it, a rate lower than among their non-CSHCN counterparts. Additionally, 38 percent of CSHCN face insurance inadequacy, compared to 29 percent of non-CSHCN. Rates of uninsurance are also rising among all infants and toddlers.[18]

Because these analyses are cross-sectional, they identify associations rather than causal relationships. Future research should examine the mechanisms that link health care access to child development, and particularly the pathways through which health care access influences social-emotional and self-regulatory skills. Longitudinal research following children from birth and tracking health care access, insurance adequacy, medical home status, and developmental trajectories would provide stronger evidence about how these health-related factors shape early development.

Conclusion

This brief is one in a series of companion briefs that examine how conditions across multiple levels of children's lives—including daily experiences, family characteristics, and neighborhood conditions—relate to developmental well-being at age 3. The findings point to areas in need of research, practice, and policy attention to better support children and families in promoting developmental well-being.

The findings in this brief indicate that variables of health care access differ for CSHCN and non-CSHCN in terms of their association with children's development. The nationally representative, population-level evidence presented here highlights modifiable health care access factors as important components of the broader constellations of conditions associated with developmental well-being in early childhood. With national and state-level data, future research can examine how these patterns vary over time and illuminate the mechanisms that link health care access to children's developmental trajectories. While no single brief or set of factors can tell the complete story, these briefs collectively provide a multi-level portrait of the conditions that support, and sometimes undermine, the developmental well-being of 3-year-olds in the United States.

To read other briefs in this series—including those examining how daily experiences, family characteristics, and neighborhood characteristics are associated with developmental well-being among 3-year-olds—visit our Publications page.

Further Reading

- School Readiness Among United States Children: Results From the 2022 National Survey of Children's Health
- Healthy and Ready to Learn: Prevalence and Correlates of School Readiness Among United States Preschoolers
- State Variation in School Readiness, 2022 – 2023 Data Brief
- School Readiness, 2022 Data Brief
- National Outcome Measure of Healthy and Ready to Learn: Research Briefs on the Pilot measure

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Appendix A

Table A1. National weighted prevalence of sociodemographic characteristics and health factors among 3-year-olds in the United States, 2022-2024, by special health care needs status

Variable	Category	CSHCN	Non-CSHCN
Sociodemographic Controls			
Sex	Female	39.0%	50.5%
	Male	61.0%	49.5%
Race/ethnicity	White, non-Hispanic	42.3%	49.6%
	Black, non-Hispanic	15.4%	9.7%
	Other/Multi-racial, non-Hispanic	13.9%	13.3%
	Hispanic, any race	28.4%	27.4%
Family poverty level (FPL)	<100% FPL	24.0%	17.1%
	100-199% FPL	20.1%	19.3%
	200-399% FPL	26.3%	27.3%
	400%+ FPL	29.6%	36.3%
Primary household language	English	84.1%	81.4%
	Non-English	15.9%	18.6%
Adverse childhood experiences (ACEs)	Zero ACEs	61.5%	75.6%
	Any ACEs	38.5%	24.4%
Birth weight	Normal birth weight	84.1%	89.7%
	Low birth weight (<2500g)	15.9%	10.3%
Family structure	Two bio/adoptive parents	64.8%	76.3%
	Single parent	28.9%	20.4%
	Other	6.3%	3.3%
Parent education	Less than HS	6.4%	8.0%
	HS degree or GED	20.5%	17.7%
	Some college	22.6%	16.4%
	College degree+	50.5%	58.0%
Health Factors			
Medical home	Care meets medical home criteria	36.3%	50.9%
	Care does not meet criteria	63.7%	49.1%
Child has a personal doctor or nurse	Does not have	16.3%	25.0%
	Yes, has at least 1	83.7%	75.0%

Variable	Category	CSHCN	Non-CSHCN
Usual source for sick care	No source	15.7%	22.9%
	One or more usual sources	84.3%	77.1%
Received family-centered care	No	20.1%	13.8%
	Yes	79.9%	86.2%
Difficulty getting referrals	Any difficulty	20.8%	2.2%
	No difficulty	37.0%	11.3%
	Did not need referral(s)	42.1%	86.5%
Effective care coordination	Did not receive needed coordination	42.3%	14.1%
	Received needed coordination	41.8%	36.7%
	Did not need care coordination	15.9%	49.2%
Insurance adequacy	Current insurance is adequate	62.1%	70.6%
	Current insurance is not adequate	37.9%	29.4%

Table A2. Odds ratios (OR) from logistic regression analyses of HRTL on medical home (composite) and insurance adequacy, with sociodemographic controls: children with special health care needs (CSHCN)

This table shows results from six logistic regression models—one per HRTL outcome—examining how each sociodemographic variable and health care access factor is associated with likelihood of being on track overall on HRTL and across the five HRTL domains, among CSHCN. Health factors reflect the composite medical home measure and insurance adequacy. Each column represents a separate model for one HRTL outcome. Values are odds ratios, which can be read as the relative likelihood of being on track for a given characteristic compared to the reference group shown in parentheses. An odds ratio greater than 1 means children with that characteristic were more likely to be on track; an odds ratio less than 1 means they were less likely. Values shown in **bold** with an asterisk (*) were statistically significant after applying the Benjamini-Hochberg correction to control the false discovery rate across all comparisons within each model.

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Sociodemographic Controls						
Female (Ref: Male)	**1.93*** (0.41)	1.44 (0.28)	**2.54*** (0.52)	**2.12*** (0.41)	1.50 (0.31)	1.00 (0.22)
Race/ethnicity: White, non-Hispanic (Ref: Hispanic)	1.30 (0.37)	1.08 (0.30)	1.29 (0.39)	1.09 (0.28)	0.99 (0.30)	1.00 (0.28)
Race/ethnicity: Black, non-Hispanic (Ref: Hispanic)	1.51 (0.65)	1.23 (0.52)	1.19 (0.48)	1.18 (0.46)	0.54 (0.22)	1.20 (0.50)
Race/ethnicity: Other/ Multi-racial, non-Hispanic (Ref: Hispanic)	0.81 (0.29)	0.89 (0.28)	0.75 (0.26)	1.03 (0.35)	0.76 (0.26)	0.89 (0.29)
100–199% FPL (Ref: <100% FPL)	0.76 (0.31)	0.82 (0.33)	0.47 (0.16)	0.60 (0.23)	0.63 (0.24)	1.43 (0.56)
200–399% FPL (Ref: <100% FPL)	0.78 (0.32)	0.54 (0.20)	0.78 (0.27)	0.66 (0.24)	0.61 (0.26)	1.69 (0.68)
400%+ FPL (Ref: <100% FPL)	2.58 (1.07)	1.18 (0.45)	1.51 (0.59)	1.28 (0.49)	0.73 (0.30)	**3.36*** (1.42)
Household language English (Ref: Non-English)	0.93 (0.38)	0.93 (0.39)	1.09 (0.42)	0.87 (0.31)	1.52 (0.63)	1.30 (0.57)
Zero ACEs (Ref: Any ACEs)	1.35 (0.35)	1.61 (0.38)	1.52 (0.37)	1.29 (0.31)	1.38 (0.35)	**1.92*** (0.47)
Normal birthweight (Ref: Low birthweight)	1.42 (0.37)	1.53 (0.40)	**2.05*** (0.50)	1.16 (0.27)	1.53 (0.47)	1.78 (0.51)
Family structure: Two bio/adoptive parents (Ref: Single parent)	1.00 (0.32)	0.90 (0.27)	1.09 (0.31)	1.14 (0.33)	0.91 (0.27)	0.66 (0.21)

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Family structure: Other (Ref: Single parent)	2.93 (1.47)	2.77 (1.19)	2.06 (0.93)	1.97 (0.87)	1.57 (0.95)	0.99 (0.46)
Parent education: HS degree or GED (Ref: Less than HS)	1.90 (1.74)	0.56 (0.36)	2.84 (1.98)	1.87 (1.16)	1.05 (0.65)	0.75 (0.49)
Parent education: Some college (Ref: Less than HS)	5.72 (5.03)	1.00 (0.65)	**6.69*** (4.46)	4.29 (2.60)	2.49 (1.39)	3.29 (2.09)
Parent education: College degree+ (Ref: Less than HS)	7.80 (6.90)	2.22 (1.44)	**7.22*** (4.82)	**5.33*** (3.27)	3.31 (1.83)	2.25 (1.46)
Health factors						
Meets medical home criteria (composite) (Ref: Does not meet)	**1.83*** (0.39)	1.51 (0.31)	**2.07*** (0.47)	**1.94*** (0.41)	1.14 (0.25)	**1.93*** (0.45)
Adequate & continuous insurance (Ref: Not adequate/continuous)	1.54 (0.31)	1.25 (0.24)	1.11 (0.23)	1.10 (0.22)	1.53 (0.33)	1.45 (0.30)

Table A3. Odds ratios (OR) from logistic regression analyses of HRTL on medical home (composite) and insurance adequacy, with sociodemographic controls: children without special health care needs (Non-CSHCN)

This table shows results from six logistic regression models—one per HRTL outcome—examining how each sociodemographic variable and health care access factor is associated with likelihood of being on track overall on HRTL and across the five HRTL domains, among non-CSHCN. Health factors reflect the composite medical home measure and insurance adequacy. Each column represents a separate model for one HRTL outcome. Values are odds ratios, which can be read as the relative likelihood of being on track for a given characteristic compared to the reference group shown in parentheses. An odds ratio greater than 1 means children with that characteristic were more likely to be on track; an odds ratio less than 1 means they were less likely. Values shown in **bold** with an asterisk (*) were statistically significant after applying the Benjamini-Hochberg correction to control the false discovery rate across all comparisons within each model.

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Sociodemographic Controls						
Female (Ref: Male)	**1.47*** (0.15)	**1.54*** (0.16)	1.37 (0.22)	1.03 (0.11)	**1.85*** (0.19)	1.22 (0.27)
Race/ethnicity: White, non-Hispanic (Ref: Hispanic)	0.98 (0.14)	0.95 (0.14)	0.95 (0.20)	0.95 (0.15)	1.09 (0.16)	0.97 (0.30)
Race/ethnicity: Black, non-Hispanic (Ref: Hispanic)	0.83 (0.21)	1.05 (0.28)	0.63 (0.20)	1.07 (0.26)	0.69 (0.17)	0.86 (0.42)
Race/ethnicity: Other/ Multi-racial, non-Hispanic (Ref: Hispanic)	0.99 (0.16)	1.42 (0.26)	0.82 (0.19)	0.86 (0.15)	1.15 (0.20)	0.42 (0.15)
100–199% FPL (Ref: <100% FPL)	0.92 (0.22)	1.18 (0.28)	0.97 (0.34)	0.99 (0.24)	0.97 (0.22)	1.51 (0.49)
200–399% FPL (Ref: <100% FPL)	1.04 (0.27)	1.27 (0.27)	1.18 (0.46)	0.83 (0.19)	1.01 (0.21)	**2.46*** (0.81)
400%+ FPL (Ref: <100% FPL)	1.27 (0.31)	1.65 (0.38)	1.56 (0.58)	0.81 (0.20)	0.96 (0.20)	**4.38*** (1.76)
Household language English (Ref: Non-English)	1.53 (0.27)	1.62 (0.30)	**2.15*** (0.51)	1.15 (0.21)	1.14 (0.21)	1.64 (0.51)
Zero ACEs (Ref: Any ACEs)	1.37 (0.18)	1.35 (0.19)	1.03 (0.20)	**1.51*** (0.21)	1.14 (0.16)	1.09 (0.30)
Normal birthweight (Ref: Low birthweight)	1.23 (0.23)	1.15 (0.22)	1.23 (0.32)	1.24 (0.25)	1.53 (0.30)	1.40 (0.44)

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Family structure: Two bio/adoptive parents (Ref: Single parent)	1.00 (0.16)	0.80 (0.14)	1.37 (0.31)	1.17 (0.18)	0.95 (0.16)	0.94 (0.29)
Family structure: Other (Ref: Single parent)	0.80 (0.30)	1.64 (0.64)	0.44 (0.18)	0.99 (0.43)	0.76 (0.30)	0.85 (0.49)
Parent education: HS degree or GED (Ref: Less than HS)	1.25 (0.38)	0.94 (0.29)	0.96 (0.37)	0.59 (0.20)	1.29 (0.41)	1.85 (0.80)
Parent education: Some college (Ref: Less than HS)	1.98 (0.59)	1.61 (0.49)	1.02 (0.40)	0.84 (0.28)	1.90 (0.59)	1.50 (0.65)
Parent education: College degree+ (Ref: Less than HS)	2.16* (0.63)	1.78 (0.53)	1.30 (0.49)	0.97 (0.31)	1.75 (0.53)	1.82 (0.78)
Health factors						
Meets medical home criteria (composite) (Ref: Does not meet)	1.37* (0.14)	1.12 (0.12)	1.43 (0.23)	1.31 (0.14)	1.04 (0.11)	1.05 (0.23)
Adequate & continuous insurance (Ref: Not adequate/continuous)	1.32* (0.14)	1.14 (0.13)	1.51 (0.24)	1.41* (0.16)	1.08 (0.12)	2.44* (0.54)

Table A4. Odds ratios (OR) from logistic regression analyses of HRTL on health factors, with sociodemographic controls: children with special health care needs (CSHCN)

This table shows results from six logistic regression models—one per HRTL outcome—examining how each sociodemographic variable and health care access factor is associated with likelihood of being on track overall on HRTL and across the five HRTL domains, among CSHCN. Health factors reflect insurance adequacy and five individual medical home components (rather than the composite medical home measure). Each column represents a separate model for one HRTL outcome. Values are odds ratios, which can be read as the relative likelihood of being on track for a given characteristic compared to the reference group shown in parentheses. An odds ratio greater than 1 means children with that characteristic were more likely to be on track; an odds ratio less than 1 means they were less likely. Values shown in **bold** with an asterisk (*) were statistically significant after applying the Benjamini-Hochberg correction to control the false discovery rate across all comparisons within each model.

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Sociodemographic Controls						
Female (Ref: Male)	**1.97*** (0.43)	1.38 (0.27)	**2.50*** (0.52)	**2.21*** (0.46)	1.36 (0.27)	0.96 (0.22)
Race/ethnicity: White, non-Hispanic (Ref: Hispanic)	1.28 (0.38)	1.19 (0.33)	1.44 (0.42)	1.04 (0.29)	1.25 (0.36)	1.13 (0.33)
Race/ethnicity: Black, non-Hispanic (Ref: Hispanic)	1.14 (0.50)	1.27 (0.55)	1.12 (0.46)	1.02 (0.41)	0.47 (0.21)	1.03 (0.42)
Race/ethnicity: Other/ Multi-racial, non-Hispanic (Ref: Hispanic)	0.89 (0.33)	1.14 (0.37)	1.00 (0.36)	1.25 (0.45)	1.01 (0.34)	1.01 (0.36)
100–199% FPL (Ref: <100% FPL)	0.79 (0.35)	0.95 (0.41)	0.50 (0.18)	0.69 (0.28)	0.70 (0.29)	1.62 (0.61)
200–399% FPL (Ref: <100% FPL)	0.66 (0.29)	0.52 (0.20)	0.64 (0.23)	0.68 (0.26)	0.69 (0.33)	1.50 (0.61)
400%+ FPL (Ref: <100% FPL)	2.38 (1.04)	1.12 (0.45)	1.32 (0.55)	1.43 (0.58)	0.78 (0.35)	3.27 (1.42)
Household language English (Ref: Non-English)	0.86 (0.35)	0.95 (0.41)	1.23 (0.44)	0.90 (0.33)	1.54 (0.64)	1.19 (0.48)
Zero ACEs (Ref: Any ACEs)	1.25 (0.34)	1.56 (0.37)	1.36 (0.33)	1.24 (0.33)	1.22 (0.30)	1.75 (0.43)
Normal birthweight (Ref: Low birthweight)	1.36 (0.36)	1.48 (0.40)	1.86 (0.48)	1.05 (0.25)	1.42 (0.40)	1.70 (0.50)
Family structure: Two bio/adoptive parents (Ref: Single parent)	1.14 (0.39)	1.01 (0.31)	1.31 (0.39)	1.33 (0.40)	0.99 (0.32)	0.76 (0.24)

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Family structure: Other (Ref: Single parent)	3.69 (1.89)	3.21 (1.42)	2.24 (1.03)	1.89 (0.86)	1.46 (1.03)	1.27 (0.63)
Parent education: HS degree or GED (Ref: Less than HS)	1.08 (0.90)	0.51 (0.35)	3.83 (2.84)	1.15 (0.70)	1.04 (0.73)	0.41 (0.28)
Parent education: Some college (Ref: Less than HS)	3.90 (3.12)	0.91 (0.61)	9.60* (6.85)	2.77 (1.66)	3.54 (2.37)	2.37 (1.62)
Parent education: College degree+ (Ref: Less than HS)	5.23 (4.21)	1.98 (1.34)	8.85* (6.32)	3.71 (2.21)	4.47 (2.95)	1.39 (0.96)
Health factors						
Adequate & continuous insurance (Ref: Not adequate/continuous)	1.36 (0.28)	1.11 (0.21)	0.90 (0.19)	1.17 (0.24)	1.44 (0.31)	1.28 (0.29)
Has a personal doctor or nurse (Ref: Does not have)	1.09 (0.31)	1.67 (0.47)	1.65 (0.49)	1.52 (0.40)	0.77 (0.20)	1.21 (0.39)
Usual source for sick care (Ref: No usual source)	0.97 (0.30)	0.85 (0.28)	1.12 (0.33)	0.79 (0.23)	0.36 (0.12)	1.09 (0.36)
Received family-centered care (Ref: Did not receive)	2.01 (0.62)	1.71 (0.47)	2.16* (0.61)	1.00 (0.28)	2.11 (0.56)	1.76 (0.51)
No difficulty getting referrals (Ref: Had difficulty getting a referral)	0.89 (0.32)	0.90 (0.30)	1.61 (0.52)	1.64 (0.54)	0.59 (0.20)	1.05 (0.33)
Did not need referrals (Ref: Had difficulty getting a referral)	2.35 (0.87)	1.63 (0.57)	4.31* (1.47)	2.96* (0.99)	1.81 (0.63)	3.22* (1.03)
Received needed care coordination (Ref: Problem w/ care coordination)	1.85 (0.45)	0.97 (0.25)	1.09 (0.25)	2.13* (0.52)	1.45 (0.37)	1.25 (0.31)
Did not need care coordination (Ref: Problem w/ care coordination)	1.90 (0.70)	1.19 (0.41)	1.60 (0.71)	1.13 (0.42)	0.99 (0.36)	1.47 (0.59)

Table A5. Odds ratios (OR) from logistic regression analyses of HRTL on health factors, with sociodemographic controls: children without special health care needs (non-CSHCN)

This table shows results from six logistic regression models—one per HRTL outcome—examining how each sociodemographic variable and health care access factor is associated with likelihood of being on track overall on HRTL and across the five HRTL domains, among non-CSHCN. Health factors reflect insurance adequacy and five individual medical home components (rather than the composite medical home measure). Each column represents a separate model for one HRTL outcome. Values are odds ratios, which can be read as the relative likelihood of being on track for a given characteristic compared to the reference group shown in parentheses. An odds ratio greater than 1 means children with that characteristic were more likely to be on track; an odds ratio less than 1 means they were less likely. Values shown in **bold** with an asterisk (*) were statistically significant after applying the Benjamini-Hochberg correction to control the false discovery rate across all comparisons within each model.

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Sociodemographic Controls						
Female (Ref: Male)	**1.64*** (0.17)	**1.61*** (0.18)	1.51 (0.26)	1.08 (0.12)	**2.04*** (0.22)	1.25 (0.29)
Race/ethnicity: White, non-Hispanic (Ref: Hispanic)	0.99 (0.16)	1.06 (0.17)	0.89 (0.21)	1.00 (0.17)	1.16 (0.18)	1.07 (0.39)
Race/ethnicity: Black, non-Hispanic (Ref: Hispanic)	0.87 (0.24)	0.97 (0.28)	0.71 (0.25)	1.22 (0.32)	0.78 (0.21)	0.90 (0.50)
Race/ethnicity: Other/ Multi-racial, non-Hispanic (Ref: Hispanic)	1.02 (0.18)	1.52 (0.29)	0.68 (0.17)	0.89 (0.16)	1.29 (0.24)	0.49 (0.19)
100–199% FPL (Ref: <100% FPL)	0.93 (0.25)	1.17 (0.30)	0.94 (0.38)	1.13 (0.29)	0.97 (0.24)	1.71 (0.67)
200–399% FPL (Ref: <100% FPL)	1.04 (0.27)	1.30 (0.29)	1.12 (0.42)	0.88 (0.20)	1.01 (0.23)	2.09 (0.78)
400%+ FPL (Ref: <100% FPL)	1.24 (0.30)	1.65 (0.41)	1.53 (0.55)	0.91 (0.21)	0.89 (0.21)	**4.75*** (1.97)
Household language English (Ref: Non-English)	1.41 (0.28)	1.50 (0.30)	**2.37*** (0.62)	0.97 (0.21)	1.22 (0.25)	1.42 (0.52)
Zero ACEs (Ref: Any ACEs)	1.31 (0.18)	1.21 (0.18)	0.86 (0.18)	**1.57*** (0.22)	1.17 (0.17)	1.07 (0.35)
Normal birthweight (Ref: Low birthweight)	1.08 (0.21)	1.21 (0.24)	0.95 (0.28)	1.18 (0.25)	1.38 (0.29)	1.21 (0.46)
Family structure: Two bio/adoptive parents (Ref: Single parent)	1.11 (0.20)	0.86 (0.16)	1.55 (0.40)	1.36 (0.23)	1.08 (0.19)	0.79 (0.30)

Variable	HRTL Overall	Early Learning	Social Emotional	Self-Regulation	Motor	Physical Health
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
Family structure: Other (Ref: Single parent)	1.31 (0.49)	1.54 (0.68)	0.71 (0.34)	1.79 (0.67)	1.15 (0.46)	0.90 (0.71)
Parent education: HS degree or GED (Ref: Less than HS)	1.31 (0.47)	0.81 (0.30)	0.84 (0.41)	0.53 (0.21)	1.40 (0.53)	**4.31*** (2.17)
Parent education: Some college (Ref: Less than HS)	2.09 (0.73)	1.44 (0.51)	1.00 (0.47)	0.75 (0.29)	1.93 (0.69)	2.26 (1.19)
Parent education: College degree+ (Ref: Less than HS)	2.18 (0.75)	1.51 (0.53)	1.25 (0.57)	0.80 (0.30)	1.66 (0.59)	3.10 (1.58)
Health factors						
Adequate & continuous insurance (Ref: Not adequate/continuous)	1.18 (0.13)	1.07 (0.13)	1.32 (0.23)	1.37 (0.17)	0.97 (0.11)	**2.15*** (0.54)
Has a personal doctor or nurse (Ref: Does not have)	1.15 (0.17)	1.07 (0.16)	0.96 (0.20)	1.00 (0.15)	0.96 (0.14)	0.68 (0.24)
Usual source for sick care (Ref: No usual source)	1.37 (0.22)	1.06 (0.18)	0.97 (0.22)	1.24 (0.20)	1.09 (0.18)	0.98 (0.33)
Received family-centered care (Ref: Did not receive)	1.47 (0.23)	1.40 (0.24)	**1.93*** (0.43)	1.10 (0.20)	1.16 (0.21)	1.64 (0.53)
No difficulty getting referrals (Ref: Had difficulty getting a referral)	1.00 (0.30)	0.89 (0.29)	1.05 (0.43)	0.91 (0.28)	0.99 (0.32)	1.31 (0.68)
Did not need referrals (Ref: Had difficulty getting a referral)	1.57 (0.44)	1.21 (0.36)	1.82 (0.70)	1.31 (0.37)	1.51 (0.46)	**4.11*** (2.15)
Received needed care coordination (Ref: Problem w/ care coordination)	1.04 (0.17)	1.02 (0.18)	1.07 (0.27)	1.03 (0.16)	1.05 (0.18)	0.74 (0.26)
Did not need care coordination (Ref: Problem w/ care coordination)	0.88 (0.14)	0.72 (0.13)	1.03 (0.26)	1.08 (0.18)	0.84 (0.14)	1.14 (0.44)

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